PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant(s): Moon Sung PARK, et al.

Serial No.: New Application

Filed: December 17, 2001

For: 4-STATE BAR CODE PRINTING AND READING SYSTEM AND METHOD FOR CONTROLLING THE SAME.

PRELIMINARY AMENDMENT TO LESSEN FEES

Honorable Commissioner for Patents
Washington, D.C. 20231

December 17, 2001

Sir:

Prior to initial examination, please amend the above-identified application as follows:

IN THE CLAIMS

Please amend the following claims:

6. (Amended) The system as claimed in claim 3, further comprising:

error correcting range comparing means for, if an error is detected by the erasure error detecting means or the substitution error detecting means, comparing a position and number information of an erasure error and a number information of a substitution error with the error correcting range, to determine whether the error correction is possible; and

error correcting means for, if the correct is impossible, producing an unreadable message to divide it into a sorting reject and store the read result, and if the correction is possible, performing the error correction.

11. (Amended) The method as claimed in claim 8, wherein the step of producing the error correcting codeword is performed by a following equation, and

$$g(x) = (1+x)(1+x^2)(1+x^3)(1+x^4) = x^4 + \alpha^{19}x^3 + \alpha^{41}x^2 + \alpha^{24}x + \alpha^{10}$$

the step comprises the steps of:

producing a hexadecimal binary table associated with values of GF(64) and a reference table in which hexadecimal values are arranged by coefficient values of index α, storing the tables to a memory, and performing an hexadecimal Exclusive-OR operation by use of following tables 1 and 2 to produce an error correcting codeword.

Table 1

Index	16 Bit	HEX	EXP
0	(000000)	0x00	NULL
1	(100000)	0x20	α^0
2	(010000)	0x10	α
3	(001000)	0x08	α^2
4	(000100)	0x04	α^3

Table 2

Bit	HEX	BTI	EXP	Index
(000000)	0x00	0	-1	-1
(000001)	0x01	1	α^5	5
(000010)	0x02	2	α^4	4
(000011)	0x03	3	α^{10}	10
⋮	⋮	⋮	⋮	⋮
(111100)	0x3c	60	α^{18}	18
(111101)	0x3d	61	α^{40}	40
(111110)	0x3e	62	α^{56}	56
(111111)	0x3f	63	α^{58}	58

R E M A R K S

The foregoing Preliminary Amendment is requested in order to delete the multiple dependent claims and avoid paying the multiple dependent claims fee.

Attached hereto is a marked-up version of the changes made to the claims by the current Amendment. The attached page is captioned "Version with Markings to Show Changes Made".

Early action on the merits is respectfully requested.

Respectfully submitted,

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Atty. Docket: P67416US0
YSH:ecl

Version with Markings to Show Changes Made

Please amend claims 6 and 11 as follows:

6. (Amended) The system as claimed in [any one of claims] claim 3 [to 5], further comprising:

error correcting range comparing means for, if an error is detected by the erasure error detecting means or the substitution error detecting means, comparing a position and number information of an erasure error and a number information of a substitution error with the error correcting range, to determine whether the error correction is possible; and

error correcting means for, if the correct is impossible, producing an unreadable message to divide it into a sorting reject and store the read result, and if the correction is possible, performing the error correction.

11. (Amended) The method as claimed in [any one of claims] claim 8 [to 10], wherein the step of producing the error correcting codeword is performed by a following equation, and

$$g(x) = (1+x)(1+x^2)(1+x^3)(1+x^4) = x^4 + \alpha^{19}x^3 + \alpha^{41}x^2 + \alpha^{24}x + \alpha^{10}$$

the step comprises the steps of:

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3	(001000)	0x08	α^2
4	(000100)	0x04	α^3
⋮	⋮	⋮	⋮
60	(101111)	0x2f	α^{59}
61	(100111)	0x27	α^{60}
62	(100011)	0x23	α^{61}
63	(100001)	0x21	α^{62}

Table 2

Bit	HEX	BTI	EXP	Index
(000000)	0x00	0	-1	-1
(000001)	0x01	1	α^5	5
(000010)	0x02	2	α^4	4
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⋮	⋮	⋮	⋮	⋮
(111100)	0x3c	60	α^{18}	18
(111101)	0x3d	61	α^{40}	40
(111110)	0x3e	62	α^{56}	56
(111111)	0x3f	63	α^{58}	58